# Student Voices

## Graduate Qualitative Distance Education: A Vygotskian Perspective

**Ian D. Gordon**
**Amber Kudeba**
**Gail Pepper**
**Pat Rocco**
*Brock University*

### Abstract

*Students' perceptions of graduate distance education are explored within a Vygotskian perspective. Barriers to effective learning are discussed using general psychological theories. The data for this qualitative study were derived from the journals of four students participating in a graduate qualitative research course offered through distance technology. The journal entries of these four students were analyzed on how the understanding of teacher practices, modelling, and student-teacher interaction facilitated student learning. Qualitative analysis and interpretation of the journal entries indicated that the perceptions of these four participants relative to distance education were overall negative. This was attributed to the virtual classroom atmosphere, practices, procedures, and instruction. Technology-related issues did not contribute to these negative emotional clusters. Vygotsky's theories of the zone of proximal development, learning tools, and scaffolding are discussed in an attempt to better facilitate distance education learning environments.*

Distance education is an emerging and popular (Bernier, 1996) means of delivering graduate and other levels of educational programs. It is beginning to become a logical and important means of program delivery with the exponential growth and use of the Internet and the World Wide Web. As graduate schools of education rush to reinvent themselves within this electronic distance education environment, researchers (Keegan, 1993; McGreal, 1997) are just beginning to observe how technological issues either facilitate or provide barriers to the learning and classroom environment. Researchers are also interested in

Ian D. Gordon, Amber Kudeba, Gail Pepper, and Pat Rocco are graduate students in the Master of Education program at Brock University.

**Education:**
:ive

*re explored within a*
*re discussed using general*
*udy were derived from the*
*ualitative research course*
*es of these four students*
*actices, modelling, and*
*g. Qualitative analysis*
*t the perceptions of these*
*verall negative. This*
*ractices, procedures,*
*ntribute to these negative*
*proximal development,*
*tempt to better facilitate*

: (Bernier, 1996) means
itional programs. It is
ieans of program delivery
ernet and the World Wide
reinvent themselves
onment, researchers
iing to observe how
e barriers to the learning
also interested in

Rocco are graduate students in

reflecting on psychological theories of learning, including Vygotskian theories, as they pertain to virtual learning environments.

Qualitative research methodologies assist researchers in attempting to understand student perceptions of whether graduate level distance education programs are effective or how they compare to traditional classroom educational environments. In hearing students' concerns, thoughts, feelings, and emotions, the entire academic community gains a better understanding of the nature, role, and effectiveness of distance education programs.

## Theoretical Framework

The educational literature (Powers & Mitchell, 1997; Saunders et al., 1997; Simonson, 1997) indicates that distance education, although an appropriate means of learning and program delivery, has many real and perceived advantages and problems. A major advantage for students is that distance education facilitates students with the ability to participate in programs of choice, and to choose the time, place, setting, style, and pace of learning according to their personal needs.

Problems perceived as barriers to effective learning include: the lack of rapport as a community of learners (Morgan, 1991), locus of control of the instructor (Besser, 1996), coping with new and emerging technologies (Anglin, 1995; Dede, 1996; Jegede & Kirkwood, 1994), a lack of student-teacher (Care, 1995), and face-to-face interaction (Laney, 1996). Additional problems from a student's perspective include the lack of accommodation of traditional and preferred learning styles, open-ended learning environments, personal, situational, institutional, dispositional, sociohistorical, and other epistemological factors.

These barriers to learning, however real, are often viewed in contrast and within the context of traditional higher educational classroom and seminar environments. Burpee and Wilson (1991) commented that distance education as a forum for learning can be perceived to be remote, impersonal, and indifferent. It would be realistic to state that these barriers may never be eliminated within distance education programs. However, it is interesting and potentially profitable to address these barriers and distance education issues with reference to current and historical educational and psychological theories of learning.

Lev Semenovich Vygotsky (1896-1934), a Soviet psychologist, viewed education as central to cognitive development and social interaction as fundamental in the development of cognition. Vygotskian general psychological and related educational theories (Moll, 1990) on

91

socialization and the role of social and historical conditions on cognitive development were developed in the early twentieth century prior to distance education and the Internet. An interesting challenge would be to reflect upon Vygotsky's theories and their application to a distance education environment to sociocultural paradigms, scaffolding, cognitive development, and processes that facilitate learning.

## Context

Brock University's Faculty of Education Master of Education program offered the distance education course EDUC 5V90, Qualitative Methods in Educational Research, in the Spring of 1998.

Students enrolled in this course (n=22; including the four investigators of this study) and faculty (n=2) met as a group during the first week of scheduled classes. This face-to-face meeting was the first and only time faculty and students gathered as a group with the purpose of reviewing course outcomes, assignments, and administrative functions. Subsequent classes, discussions, consultations, and activities for an 8-week period involved individual and collaborative scheduled on-line chat sessions, required readings, e-mailings, and sharing of personal expertise, experiences, on-line, and Internet resources.

As part of a major collaborative data collection, analysis, and presentation assignment, the four investigators agreed to write reflective journals during the first 5 weeks of the course. The content of these journals involved comments on the course, qualitative research, and distance education. These personal journal entries created a database with which to investigate whether distance education was an effective means with which to learn, discuss, and participate in a graduate level distance education course and to develop an understanding of the principles of qualitative research. The analysis, research, and presentation of this major assignment and the subsequent discussions resulting from this cooperative exercise formed the basis of this study.

The study of this phenomenon also allowed investigators the opportunity to analyze journal entries in an attempt to reflect on psychological theories of learning as they pertain to virtual learning environments. Learning theories were based on Vygotsky (1930/1978), Vygotskian developmental and cognitive process theories (Hausfather, 1996), constructivist learning environments (Cole, 1985), theories of scaffolding (Rosenshine & Meister, 1992), sociocultural historical paradigms (Wertsch, 1985, 1990), and self-regulated learning strategies (Henderson & Cunningham, 1994). This assignment allowed the investigators to study a specific problem with the opportunity to move

nditions on cognitive
century prior to
g challenge would be
cation to a distance
, scaffolding, cognitive
;.


'Education program
Qualitative Methods

:luding the four
as a group during the
teeting was the first
group with the purpose
Administrative functions.
d activities for an
re scheduled on-line
sharing of personal
rces.
:ction, analysis, and
greed to write reflective
the content of these
itive research, and
; created a database
tion was an effective
te in a graduate level
standing of the
esearch, and
sequent discussions
te basis of this study.
d investigators the
pt to reflect on
to virtual learning
'ygotsky (1930/1978),
heories (Hausfather,
:, 1985), theories of
ltural historical
ted learning strategies
ent allowed the
opportunity to move

beyond the data to develop a deeper meaning and understanding of qualitative research methods and distance education learning environments.

Further discussions led the investigators of this study to ask the question, "How might the delivery of distance education programs and the understanding of qualitative research change the understanding of teacher practices, modelling, scaffolding, and student-teacher interaction?" The guiding question or purpose of the study, as a new area of research, was to investigate "How did EDUC 5V90, Qualitative Methods in Educational Research as a distance education course facilitate the learning of qualitative research?"

## Method

The investigators (n=4) who were enrolled in Brock University's Faculty of Education EDUC 5V90 in the Spring 1998 term met as a group and agreed to participate in a collaborative data collection, analysis, and presentation assignment in partial completion of course requirements. The investigators formed a group, based on previous contacts within the Master of Education program. The creation of such a small sample size, including participants not chosen at random, may have reduced the validity of results and introduced personal and group biases.

Participants agreed to record journal notes on their thoughts and feelings while involved in the course. The journal method was used to facilitate an in-depth analysis of the way that learning and understanding evolved in a distance course as well as allowing for themes and trends to be more easily detected. The journal entries created a reservoir of data, accurately describing and reflecting students' thoughts, feelings, and understanding of distance education and qualitative research.

Data from personal journals were collected after the sixth week and coded according to three main and nine related subcategories derived, defined, and agreed upon by all participants. Categories for coding were based on constructivist research, particularly that of Vygotsky, that indicate the importance of the environment in the learning process. Categories related to the *learning environment*, including the subcategories of the learning process, demonstrated concepts, and authentic practice. The category *technology as a tool* included the subcategories of communication, support of thought processes, and degree of comfort. The category *classroom environment* involving the sociocultural aspects of the learning environment, and

*instructional support*, included the subcategories of sense of community, practices and procedures, and quality of discussion.

During the coding exercise each investigator cross-referenced each category and subcategory entry with a single emotional code. Emotional codes were derived and agreed upon by all investigators prior to the analysis of journal entries during a brainstorming session in which all participants read through their journals to elicit feelings recalled from written entries. A spectrum of 18 emotional codes representing personal feelings were classified as either negative or positive. Positive codes, including challenged, pleased, comfortable, relieved, happy, interested, and surprised, reflected personal feelings associated with the facilitation of learning. Negative codes, including confused, stressed, frustrated, annoyed, insulted, apprehension, anxious, concerned, disappointed, and uncomfortable, were associated with a failure or lack of learning opportunities. Each investigator then coded their own personal journal entries following standard qualitative analysis techniques.

The resulting analysis of journal entries including frequencies of category, subcategory, and emotional codes were charted into four individual charts and corresponding frequencies were added. The analysis and charting of frequencies also allowed for the tracking of category, subcategory, and emotional codes over a 5-week time period.

## Limitations and Scope

The collection of data, analysis, and interpretation by each investigator may have provided a valuable insider's view of distance education and qualitative research, but may have introduced personal and group biases that may have affected the study's analysis, discussion, conclusion, and recommendations. The sample size of four self-selected members of the class may not have represented the opinions and feelings of the entire class or graduate students in general. Personal biases, personal and preferred learning styles of participants may have influenced the nature and content of discussions and journal entries. Because they were first-time distance education students, participants may have had preference for face-to-face interaction and a traditional classroom environment, and this also may have influenced the findings and resulting recommendations.

Journal entries for each investigator were tracked over a 5-week period. The nature, length, and content of individual journal entries may have varied between participants over the 5-week time

period and m
also true of t
analysis of ir
the analysis
one outside i
is recommer
be replicatec
participants
and over an

The analysi
First, the fc
the course a
generally n
experience
intimidatir
conversatic
These earl
of the jourr
positive cor
Th
greatest cc
area of atr
negative t
to how the
course. Fo
on the isol
Removing
the cohesi
who comm
voices and
Missing t
course."
T
which der
had towa
category,
the large
remarks
a cluster

ries of sense of community,
ssion.
tigator cross-referenced
ngle emotional code.
n by all investigators
a brainstorming session
urnals to elicit feelings
3 emotional codes repre-
her negative or positive.
:omfortable, relieved,
sonal feelings associated
es, including confused,
hension, anxious, con-
e associated with a failure
gator then coded their
rd qualitative analysis

es including frequencies
vere charted into four
es were added. The
ed for the tracking of
r a 5-week time period.

pe

:ion by each investigator
distance education and
personal and group
sis, discussion,
size of four self-selected
. the opinions and
s in general. Personal
f participants may have
is and journal entries.
i students, participants
:tion and a traditional
influenced the findings

ere tracked over a
of individual journal
ver the 5-week time

period and may have been influenced by a variety of factors. This is also true of the coding, analysis, and decisions involved with the self-analysis of individual journal entries. Biases may have been limited if the analysis, coding, and secondary interviews were conducted by someone outside the group of original investigators. To increase validity, it is recommended that this investigation be viewed as a pilot study and be replicated, with a larger sample size, using a random selection of participants, within a number of graduate distance education programs, and over an extended period of time.

## Findings

The analysis of journal entries produced four significant observations. First, the four participants discovered that their overall remarks toward the course and how it facilitated learning in qualitative research were generally negative. For example, Person 4 commented on the first experience with the course in the following manner, "...quite strange, intimidating and not very inspiring as there was no flow in the conversation and that everyone's comments were all over the place." These early negative remarks continued throughout in the evaluation of the journals, which eventually produced a 2 to 1 ratio of negative to positive comments.

The second observation continued with this negative tone. The greatest concern among the participants within the course was in the area of atmosphere. The negative remarks varied from a low of 2 to 1, negative to positive, to a high of 6 to 1, negative to positive, with respect to how the atmosphere helped foster the participant's learning in the course. For example, Person 2 noted, "... many people have commented on the isolation they feel in learning through this kind of environment. Removing any vestiges of normal human interactions is detrimental to the cohesion of the group." A similar remark was made by Person 1, who commented, "I am missing facial expressions, power struggles, voices and other personal expressions only noted when we meet in class. Missing this human element is frustrating and takes away from the course."

The above remarks were indicative of the third observation, which demonstrated the negative emotional feelings that the participants had towards the course. The subgroupings, within the atmosphere category, practices and procedures, and quality of discussion, produced the largest number of negative responses for the four participants. These remarks along with other comments in the instruction category produced a cluster of negative emotions among the four participants that surfaced

throughout the 5 weeks in the journal entries. This emotional cluster included the emotions of frustration, annoyance, and disappointment, which appeared consistently throughout the remarks of the participants. For example, Person 4 stated, "I'm feeling frustrated when we are on line for a chat session. The discussion is all over the place and not focused on a particular issue or chapter. I would be more comfortable if the discussion were [sic] more focused."

The fourth observation was that the instruction in the course became a factor in the later stages of the journal entries. As the course proceeded, the participants began to realize that the instruction that was needed to complete the assignment work was not being provided in an efficient manner. For example, Person 4 noted feeling "...really surprised that the Prof's asked for group work when face-to-face meetings are probably quite difficult for the majority of people. In addition not feeling that I've really learned what I expected or wanted to learn about qualitative research—I'm hoping that assignment #3 will leave me feeling different...." Person 1 added, "I find the readings are adequate, but lack a grounding in personal experience."

Interaction with technological issues in the course received the highest positive response from all four participants. Students felt comfortable with the technology within the course and did not experience problems in using the technology as a tool for learning. For example, Person 2 noted, "I received an e-mail from [Person 1] today and he provided me with the search information he had done. This is so convenient to exchange information in this way." Person 4 commented on the technology as follows, "I was able to spend time exploring the resources available to us and looked at an archived chat session which was interesting. This is nice to be able to do this whenever you can."

## Discussion

A prominent implication of this study is that understanding, instruction, and interaction are limited by exclusive use of distance environments and their inherent technologies. While initial feelings toward this medium were positive, there was growing dissatisfaction with the way that technology affected the learning atmosphere. Large considerations in explaining the data collected from this study were constructivist theories, particularly Vygotsky's theories of the zone of proximal development.

The zone of proximal development is defined as "the distance between the [student's] actual developmental level and his or her potential level of development under the guidance of more expert adults or in collaboration with more competent peers" (Smith & Cowie, p. 352).

his emotional cluster
and disappointment,
arks of the participants.
ated when we are on
the place and not
e more comfortable

ruction in the course
entries. As the course
the instruction that was
being provided in an
eling "...really surprised
-face meetings are
In addition not feeling
l to learn about
t #3 will leave me
adings are adequate,

he course received the
ts. Students felt
e and did not experience
rning. For example,
n 1] today and he
done. This is so
Person 4 commented
time exploring the
d chat session which
whenever you can."

erstanding, instruction,
tance environments
ings toward this
sfaction with the way
. Large considerations in
 constructivist theories,
ximal development.
ed as "the distance
l and his or her
 of more expert adults
Smith & Cowie, p. 352).

In other words, Vygotsky viewed learning and meaning as being socially constructed (Vygotsky, 1930/1978). Important elements in moving students through this zone and towards autonomy were scaffolding and modelling of the task. Scaffolding while acquiring new skill occurs through interactive reciprocal dialogue, feedback, and support of lower level mental functions to free up processing resources for more difficult task components. By making spontaneous adjustments to the learning situation and the changing social environment, the student and teacher engage in joint problem solving activities that move, or scaffold, the student to a higher level of thought and construction of personal knowledge. Like the supports that construction workers use on buildings, scaffolding is intended to be temporary. It is there to aid the completion of a task, and it is eventually removed.

According to Vygotsky (1930/1986), self-regulation only occurs after a level of competence has been reached and the learner has been scaffolded through the zone of proximal development. Until that point, learners often are unable to make appropriate judgements regarding their own learning and may not be able to articulate what it is that they need to know. According to Vygotsky, learning should take place in a context that is authentic and realistic. Rather than reducing the complexity of the environment, understanding should be supported through scaffolding of tasks and modelling of practices and procedures required in those tasks.

Since Vygotsky's theory places such a high emphasis on the learning environment, elements of the virtual classroom need to be examined to determine how it supported understanding. Research conducted by Burpee and Wilson (1991) on distance education concludes that this form of learning is perceived to be remote, impersonal, and indifferent rather than creating warm interactions and a human atmosphere conducive to learning. Other researchers in this area conclude that a lack of face-to-face interactions engender difficulty in creating cohesive active learning communities (Repman & Logan, 1996). The trends observed from this study would support those conclusions. When speaking of chat room atmosphere, Participant 2 wrote, "I am not simply a content machine, there is an element of interest and desire to interact with others that is required before in-depth, meaningful conversation can take place and this cannot simply be turned on and off like a switch."

Established practices and procedures also have played a contributing role. Participant 3 summed up the feelings of the group by stating "both classroom space and chat sessions need to be specially directed towards content to ensure that all necessary information is

97

covered. Classroom guidelines should be established early on in how to utilize and maximize learning in this environment." The notion that a unique set of skills are required in distance environments is supported by Moll (1998) when he states, "... students of any age need to be supported in acquiring information processing skills as we integrate this technology into our schools. What distinguishes excellent telecommunications activities from merely good ones is the degree to which the designers pay attention to this support."

Vygotsky (1930/1978) defined "tools" as anything used as an aid to carry out or complete the task. As such, the technology aspect of this course could be considered a tool used in completion of the learning task. For Vygotsky, effective tools were embedded in the learning task, not ancillary to it. For the 5V90 course the technology was certainly embedded within the course and was not simply an afterthought. Interestingly, the use of the technology itself did not pose any real difficulties for the participants, as was expressed by the relatively high degree of comfort in its use. However, real concern was expressed over the ability of this tool to facilitate expression and communication. Participant 3 stated, "I start to write and lose my train of thought. I get very exasperated trying to write everything down and estimate I only put down about 1/8 of what I would express verbally." All participants felt that face-to-face interactions would have accelerated the learning. In addition, all participants found that some degree of miscommunication took place as a direct result of communicating through this medium, particularly during group work.

Given the negative reactions to some of Vygotsky's most crucial elements of learning environments, it would seem that this medium is not appropriate as the primary delivery mechanism for the study of qualitative research. Gibson's notion of affordances (Greeno, 1994) would also support this conclusion. Given the complexity of qualitative research and its irregularity as a field of study, multiple perspective taking, pluralism, collaboration, authentic application, etc. become essential to understanding the many nuances of this ill-structured domain.

However, these activities are communication- and support-laden. The sheer volume of exchanges required to achieve the necessary depth of discussion makes written communication as the sole form of expression unfeasible. In Gibson's terms, (Greeno, 1994) this environment does not afford the learning of the task. For Vygotsky, the tool never becomes transparent to the task and instead of assisting the learner through the zone of proximal development, the virtual classroom hinders this process. Technology aside, the lack of scaffolding and modelling also hindered the process of learning within the course.

The researche
dissatisfactior
learning envir
and type of ins
through the z
learning.

Overa
was not a con
the learning p
ment was the
the course ma
facilitate the l
atmosphere, a
of future dista

The authors a
Professors Tor
and willingne
a larger comn

Anglin, G.J. (
*futur*
Docu
Bernier, R. (1
*Cana*
Besser, H. (1
envi
*Scier*
Burpee, P., &
Educ
Docu
Care, W.D. (
*educ*
the F
Man
389 {

## Conclusion

The researchers, through this study, observed that there was a growing dissatisfaction with the negative way technology influenced the distance learning environment. Another key observation was that the amount and type of instructional support influenced students' ability to move through the zone of proximal development and thus gain maximum learning.

Overall, the study illustrated that the use of the technology was not a concern for the four participants. However, what hindered the learning process or movement through the zone of proximal development was the exclusive use of this technology and the means by which the course material was applied through the technology. To better facilitate the learning process, a blending of the three areas, instruction, atmosphere, and technology, must occur to minimize the frustration of future distance education participants.

### *Acknowledgements*

## References

Anglin, G.J. (1995). *Instructional technology: Past, present, and future* (2nd. ed). Englewood, CO: Libraries Unlimited. (ERIC Document Reproduction Service No. ED 395 572)

Bernier, R. (1996). Distance education: Beyond correspondence courses. *Canadian Social Trends, 40,* 21-23.

Besser, H. (1996). Issues and challenges of the distance independent environment. *Journal of the American Society for Information Science, 47*(11), 817-820.

Burpee, P., & Wilson, B. (1991). Distance education in the Faculty of Education. *McGill Journal of Education, 25,* 171-180. (ERIC Document Reproduction Service No. ED 337 161)

Care, W.D. (1995, January). *Helping students to persist in a distance education program: The role of the teacher.* Paper presented to the Faculty of Nursing, University of Manitoba, Winnipeg, Manitoba. (ERIC Document Reproduction Service No. ED 389 855)

Cole, M. (1985). The zone of proximal development: Where culture and cognition create each other. In J.V. Wertsch (Ed.), *Culture, communication, and cognition: Vygotskian perspectives* (pp. 146-161). New York: Cambridge University Press.

Dede, C. (1996). The evolution of distance education: Emerging technologies and distributed learning. *American Journal of Distance Education, 10*(2), 4-36.

Greeno, J.G. (1994). Gibson's affordances. *Psychological Review, 101*(2), 336-342.

Hausfather, S.J. (1996). Vygotsky and schooling: Creating a social context for learning. *Action in Teacher Education, 18*(2), 1-10.

Henderson, R.W., & Cunningham, L. (1994). Creating interactive sociocultural environments for self-regulated learning. In D.H. Schunk & B.J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational applications* (pp. 255-282). Hillsdale, NJ: Lawrence Erlbaum Associates.

Jegede, O.J., & Kirkwood, J. (1994). Students' anxiety in learning through distance education. *Distance Education, 15*(2), 279-290.

Keegan, D. (1993). *Theoretical principals of distance education.* London: Routledge.

Laney, J.D. (1996). Going the distance: Effective instruction using distance learning technology. *Educational Technology, 36*(2), 51-54.

McGreal, R. (1997). The Internet: A learning environment. *New Directions for Teaching and Learning, 71,* 67-74.

Moll, L.C. (Ed.). (1990). *Vygotsky and education: Instructional implications and applications of sociohistorical psychology.* Cambridge, MA: Cambridge University Press.

Moll, L.C. (1998). *Critical Issue: Building on prior knowledge and meaningful student contexts / cultures* [On-line]. Available: http://www.ncrel.org/sdrs/areas/issues/students/learning/lr1scaf.htm

Morgan, A. (1991). *Research into student learning in distance education.* Geelong, Victoria, Australia: Deakin University, Institute of Distance Education. (ERIC Document Reproduction Service No. ED 342 371)

Powers, S.M., & Mitchell, J. (1997, March). *Student perceptions and performance in a virtual classroom environment.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL. (ERIC Document Reproduction Service No. ED 409 005)

Repman, J., &
   barri
Rosenshine,
   high
   26-3£
Saunders, N.
   & Th
   *Resp
   *envii*
   Mid-
   (ERl
Simonson, M
   lear
Smith, P.K.,
   *deve*
Vygotsky, L
   *of hi*
   Uni
Vygotsky, L
   Can
   pub
Wertsch, J.
   Can
Wertsch, J.
   app
   *Insl*
   *psy(*
   Pre

Repman, J., & Logan, S. (1996). Interactions at a distance: Possible barriers and collaborative solutions. *TechTrends, 41*(6), 35-38.

Rosenshine, B., & Meister, C. (1992). The use of scaffolds for teaching higher-level cognitive strategies. *Educational Leadership, 49*(7), 26-33.

Saunders, N.G., Malm, L.D., Malone, B.G., Nay, F.W., Oliver, B.E., & Thompson, J.C., Jr. (1997, October). *Student perspectives: Responses to Internet opportunities in a distance learning environment.* Paper presented at the annual meeting of the Mid-Western Educational Research Association, Chicago, IL. (ERIC Document Reproduction Service No. ED 413 816)

Simonson, M. (1997). Distance education: Does anyone really want to learn at a distance? *Contemporary Education, 68*(2), 104-107.

Smith, P.K., & Cowie, H. (1991). *Understanding children's development* (2nd ed.). Oxford, UK: Blackwell.

Vygotsky, L. (1978). In M. Cole (Ed.), *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press. (Original work published 1930)

Vygotsky, L. (1986). *Thought and Language.* (A. Kozulin, Trans., Ed.). Cambridge, MA: The MIT Press. (Original work *Nuphlie i rech* published 1930)

Wertsch, J.V. (1985). *Vygotsky and the social formation of mind.* Cambridge, MA: Harvard University Press.

Wertsch, J.V. (1990). The voice of rationality in a sociocultural approach to mind. In L.C. Moll (Ed.), *Vygotsky and education: Instructional implications and applications of sociohistorical psychology* (pp.111-126). Cambridge, MA: Cambridge University Press.